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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,207	08/26/2008	Jose R. Marti	PAT 2796W-2	5819

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EXAMINER

BARBEE, MANUEL L

ART UNIT	PAPER NUMBER
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2857

NOTIFICATION DATE	DELIVERY MODE
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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/599,207	Applicant(s) MARTI ET AL.	
	Examiner MANUEL L. BARBEE	Art Unit 2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6,11-19,22-24 and 27-35 is/are rejected.
- 7) ☒ Claim(s) 3,7-10,20,25 and 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Drafts, Person's Patent Drawing, Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/9/10</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 11 and 12 objected to because of the following informalities:

Claim 11 refers to Figure 6 and claim 12 refers to claim Figure 8. Incorporation by reference to a specific figure or table "is permitted only in exceptional circumstances where there is no practical way to define the invention in words and where it is more concise to incorporate by reference than duplicating a drawing or table into the claim. Incorporation by reference is a necessity doctrine, not for applicant's convenience." *Ex parte Fressola*, 27 USPQ2d 1608, 1609 (Bd. Pat. App. & Inter. 1993) (See MPEP 2173.05(s)).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4, 11, 12, 21, 24 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 4:

The term "about" in claim 4 is a relative term which renders the claim indefinite.

The term "about" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The term

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"about" makes it unclear what range of frequencies is used for the one frequency.

As per claim 11:

Claim 11 recites limitations for a transmission line model of a electrical winding without defining the variables of the model and it is unclear how the variables of the model relate to a an electrical winding and it is unclear how the model relates to the drawing shown in Figure 6.

As per claim 12:

Claim 12 recites limitations for a transmission line model of a electrical winding without defining the variables of the model and it is unclear how the variables of the model relate to a an electrical winding and it is unclear how the model relates to the drawing shown in Figure 8.

As per claim 21:

The term "about" in claim 21 is a relative term which renders the claim indefinite. The term "about" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The term "about" makes it unclear what range of frequencies is used for the one frequency.

As per claim 24:

The term "about" in claim 24 is a relative term which renders the claim indefinite. The term "about" is not defined by the claim, the specification does not provide a

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standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The term "about" makes it unclear what range of frequencies is used for the one frequency.

As per claim 31:

Claim 31 recites a limitation for a constant that defines the velocity of light in a vacuum. It is unclear how this constant is used in calculating the base characteristic impedance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 5, 6, 13-19, 22, 23, 27 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,853,939 to Coffeen (Coffeen).

As per claim 1:

Coffeen teaches a signal generator for applying an electrical signal having a frequency component to the input terminal of the electrical winding (Fig. 4, signal generator 402, col. 16, lines 14-57). The sensing means, processing means and

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storage means are being treated under 35 USC 112 sixth paragraph. Coffeen teaches a sensing means for detecting a magnitude and a phase of an output electrical signal at the output terminal of the electrical winding, the sensing means converting the magnitude and the phase of the output electrical signal into digital signals (Fig. 4, signal recorder 404 and sensing element 322; col. 17, lines 11-46). Coffeen teaches a processing means for setting parameters of the electrical signal and for receiving the digital signals, the processing means calculating the characteristic impedance with the digital signals and the parameters of the electrical signals corresponding to one frequency based on a transmission line model of the electrical winding (Fig. 4, processor 406; pulse/signal voltage and width adjusters 408, 410; col. 18, lines 26-41). Coffeen teaches storage means for storing the digital signals and the parameters of the electrical signal (Fig. 4, memory 412; col. 17, lines 62-67).

As per claim 2:

Coffeen teaches that the signal generator includes one of a function generator and a network analyzer for generating the electrical signal at the one frequency (col. 6, lines 14-57).

As per claim 5:

Coffeen teaches a high speed digital data recorder (col. 17, lines 11-29).

As per claim 6:

Coffeen teaches a memory device (Fig. 4, memory 412).

As per claim 13:

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Coffeen teaches a recurrent surge generator for generating the electrical signal, the electrical signal including a train of pulses (col. 17, lines 11-46).

As per claim 14:

Coffeen teaches a train of square pulses (col. 17, lines 11-46).

As per claim 15:

Coffeen teaches a calculation engine for executing a Fourier transform algorithm to decompose the electrical signal and the digital signals into frequency components (col. 20, line 62 - col. 21, lines 20).

As per claim 16:

Coffeen teaches a transformer winding housed in a tank (col. 6, lines 1-25; Fig. 1).

As per claim 17:

Coffeen teaches that the transformer is on-line (col. 22, lines 47-51).

As per claim 18:

Coffeen teaches applying an input signal having a frequency component to a first terminal of the electrical winding (col. 16, lines 14-57). Coffeen teaches measuring an output signal at a second terminal of the electrical winding and storing the input signal data and the output signal data (col. 17, lines 11-46). Coffeen teaches calculating the characteristic impedance based on a transmission line model of the electrical winding with the input signal data and the output signal data corresponding to one frequency (col. 18, lines 26-41).

As per claim 19:

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Coffeen teaches generating an analog signal having predetermined voltage and current values at the one frequency (col. 16, lines 14-47).

As per claim 22:

Coffeen teaches generating a pulse train having predetermined voltage and current values (col. 17, lines 11-46).

As per claim 23:

Coffeen teaches executing a Fourier transform algorithm to decompose the input signal and the output signal into frequency components, where the frequency components include the one frequency (col. 20, line 62 - col. 21, lines 20).

As per claim 27:

Coffeen teaches a transformer winding housed in a tank (col. 6, lines 1-25; Fig. 1).

As per claim 28:

Coffeen teaches that the transformer is on-line (col. 22, lines 47-51).

6. Claims 29, 30 and 32-35 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 6,035,265 to Dister et al. (Dister).

As per claim 29:

Dister teaches obtaining and storing a base characteristic impedance of the electrical winding at first time (col. 12, lines 57-65). Dister teaches obtaining and storing a current characteristic impedance of the electrical winding at a second time after the first time (col. 12, line 66 - col. 13, line 8). Dister teaches calculating a difference between the current characteristic impedance and the

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base characteristic impedance and calculating an approximate winding displacement from the difference value (col. 12, line 66 - col. 13, line 8; Fig. 9, mechanical column).

As per claim 30:

Dister teaches calculating an approximate fault impedance of the electrical winding at the second time (col. 12, line 66 - col. 13, line 8).

As per claim 32:

Dister teaches applying an input signal having a frequency component to a first terminal of the electrical winding (col. 7, lines 22-44). Dister teaches measuring an output signal at a second terminal of the electrical winding and storing the input signal data and the output signal data (col. 8, lines 6-27, 50-60). Dister teaches calculating the base characteristic impedance from the transmission line model of the electrical winding with the input signal data and the output signal data corresponding to one frequency (col. 12, lines 1-36).

As per claim 33:

Dister teaches repeating the steps of claim 32 for a plurality of frequencies (col. 12, lines 21-36).

As per claim 34:

Dister teaches applying an input signal having a frequency component to a first terminal of the electrical winding (col. 7, lines 22-44). Dister teaches measuring a second output signal at a second terminal of the electrical winding and storing the input signal data and the second output signal data (col. 8, lines 6-27, 50-60).

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Dister teaches calculating the base characteristic impedance from the transmission line model of the electrical winding with the input signal data and the output signal data corresponding to one frequency (col. 12, lines 1-36).

As per claim 35:

Dister teaches repeating the steps of claim 34 for a plurality of frequencies (col. 12, lines 21-36).

Allowable Subject Matter

7. Claims 3, 7-10, 20, 25 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MANUEL L. BARBEE whose telephone number is (571)272-2212. The examiner can normally be reached on Monday-Friday from 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on 571-272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MANUEL L. BARBEE/
Primary Examiner, Art Unit 2857

mlb
June 3, 2011